

A conventional GSM (global system for mobile communications) or UMTS (universal mobile telecommunication service) core network provides bearer control and call control. The bearer control is the aspect of signaling related to the control of the selection of a path through the transmission network and utilizing (reserving, releasing and setting up) the required resources. The call control is the aspect of signaling related to the subscriber and service control, taking, for example, the subscriber state into consideration.

The present invention relates to enabling and optimizing call setup in a telecommunication network with separated call control and bearer control, i.e., setup of payload connection. The separation of call control and payload transmission means that the signaling to control nodes, such as MSCs (mobile service switching centers) and GMSCs (gateway MSCs) and TSCs (transit switching center) takes a different path through the network than the payload. This enables the telecommunication network to perform at optimal routing for the payload, using a minimum of resources. Depending on the call case, originating call, terminating call, internal call or transit call, there are only one or maximally two media gateway (MGW) necessary. The MGW modifies or switches the user plane. It performs operations such as announcement generation, tone generation, echo cancellation, modem handling for data calls, frame handling and CODEC (transcoder) handling for speech calls.

The Office action is essentially a repeat of the prior Office action with each ground of rejection being modified to include Jouppila et al. U.S. Patent No. 6,208,633. While the action is generally correct in its discussion of Jouppila et al., the action extrapolates what is disclosed to be the separation of call control and bearer control in setting up a call in a wireless

communication network. In fact, there is no disclosure or suggestion in Jouppila et al. of separation of call control and bearer control.

Jouppila et al. principally deals with the communications between a mobile station 10 and a mobile services switching center 12 to initiate a call. Particularly, Jouppila et al. relates to the separation of call and connection control in mobile access. This separation relates to the separation of the service call control (SCC) and the wireless network specific call control (WCC) in the mobile station 10, as discussed at col., lines 63-67. This is distinct from the claimed method which relates to call set up occurring in the wireless communication network in response to receiving a service request, rather than separation of call control in a mobile station.

In Jouppila et al., the call control and bearer control utilize the same devices, i.e., the mobile station 10, MSC 12, the ATM network 14 and service node 16, and follow the same path. As is described throughout, the same devices are used for call control as well as for bearer control. Thus, there is no separation of call control and bearer control disclosed or suggested in Jouppila et al.

In Jouppila et al., Fig. 1 illustrates the control plane entities for the separation of traditional call control into service-specific call control and radio-specific call control. Fig. 2 illustrates "the user plane bearer connectors between the components of Fig. 1". See col. 2, lines 60-61. Additionally, "[i]t should be understood that actual bearer control inside the PLMN is the responsibility of the WCC function". See col. 6, lines 9-11. Fig. 1 functionally illustrates the communication of information between components within the system. For example, between the mobile station 10 and the MSC 12, there is a link illustrated between the SCCs and another

link between the WCCs. In reality, this information is computed over the same connection comprising the radio bearer connection illustrated in Fig. 2. As such, call control does not follow a separate path from the bearer control.

As discussed above, the separation of call control and payload transmission means that the signaling to control nodes takes a different path through the network than the payload itself. This enables the telecommunication network to perform optimal routing for the payload, using a minimum of resources. This is not disclosed or suggested in Jouppila et al. As clearly shown in Figs. 1 and 2 of Jouppila et al., the signaling to a control node takes the same path through the illustrated portion of the network as the payload. In both instances, the path is between the mobile station 10 and MSC 12, the MSC 12 and ATM network 14 and the ATM network 14 and service node 16. While the service node 16 may act as a gateway between different networks, the call control and bearer control follow the same path and use the same devices to connect the call from the mobile station to the service node 16.

In summary, Jouppila et al. discloses a separation of core network and access network control in a mobile station to enable a unified handling of calls in the core network independent from the used access network, *see* col. 2, lines 42-47. This separation does not separate call control from bearer control as in the invention, but rather access network connection control from core network connection control. For both access network connection control and core network connection control, the call control and bearer control are handled together by the same instances, i.e., for the access network the SCC and for the core network the WCC.

Applicant traverses the rejection of claims 1 and 2 as obvious over Kalmanek, Jr., et al. U.S. Patent No. 6,324,279 in view of Jouppila et al. and Valentine et al. U.S. Patent No. 6,353,607.

Independent claim 1 specifies a method of setting up a call in a wireless communication network with separation of call control and bearer control comprising: receiving a service request for a call, the request originating internal to the wireless communication network or external to the wireless communication network, the call being intended for a select destination; analyzing the service request and the call origin; selecting at least one media gateway to switch a user plane for handling the call dependent on the result of the analysis; and communicating with the media gateway to setup bearer control for the call.

Contrary to the observations made in the Office action, Kalmanek, Jr., et al. do not relate to separation of call control and bearer control.

Kalmanek, Jr., et al. include a single figure of the hardware system in Fig. 1. This is not even a wireless system. Kalmanek, Jr., et al. relates to the section of a port instead of a bearer. All access to the communication network is via the network edge devices 120 and 121. Kalmanek, Jr. et al. do not use any selection of payload transmission devices.

Kalmanek, Jr., et al. disclose the use of two phase signaling for sending messages for setting up a call and messages for connecting a call. This is described in section number 3 beginning at column 12, line 39. The separation described in Kalmanek, Jr., et al. relates to the timing and how messages are sent. In the example, a setup message is transferred through the network and is routed to the gate controllers. For connecting the call, the messages are sent end

to end, rather than through the gate controllers. This separation in time of messages for setting up a call from messages for connecting a call is not remotely related to separating call control and bearer control.

Not relating to selection of a bearer, Kalmanek, Jr., et al. does not disclose or suggest selecting a media gateway to switch a user plane for handling a call and thus communicating with the media gateway to setup bearer control for the call. In discussing Kalmanek, Jr., et al. relative to the claimed invention, the examiner misinterprets the teachings by using the terminology from the present application as corresponding to the technology disclosed in Kalmanek, Jr., et al. when there is no such correlation.

Kalmanek, Jr., et al. is directed to a method for exchanging signaling messages in two phases for allocating network resources. This is unrelated to the problem of separating call control from bearer control.

As the Court of Appeals, Federal Circuit, held in In re Wright, 6 USPQ2d 1959, 1962 (Fed. Cir. 1988):

"The problem solved by the invention is always relevant. The entirety of a claimed invention, including the combination viewed as a whole, the elements thereof, and the properties and purpose of the invention, must be considered.

Factors including unexpected results, new features, solutions of a different problem, novel properties, are all considerations in the determination of obviousness in terms of 35 U.S.C. §103. When such factors are described in the specification they are weighed in determining, in the first instance, whether the prior art presents a prima facie case of obviousness."

The problem solved by applicant in the above-referenced application is distinct from the problem solved by Kalmanek, Jr., et al. This problem solved, as well as the entirety of the invention, must be considered by the examiner in evaluating an obviousness argument. The examiner has not followed the required factors. The action does not discuss the differences in the problems solved and the differences in the means used to solve such problems.

Jouppila et al. and Valentine et al. do not disclose or suggest the deficiencies noted with respect to Kalmanek, Jr., et al. Moreover, the combination of the references is improper. In the action, the Examiner states:

“Regarding the separation of call control and bearer control in the setting up a call in a wireless communication network, Jouppila teaches the improved technique by separating of the call control and the connection control to allow the separate connection control mechanism to handle the physical and virtual channel connection in a mobile communication system (reference omitted).

As discussed above, the separation of call control and connection control (in a mobile station) does not correspond to separation of call control and bearer control (in the network). These are completely different concepts which are unrelated to one another.

The Examiner's reference to the service node for handling the call as corresponding to a media gateway, is not well founded. As noted above, Jouppila et al. discloses the same four devices, i.e., the mobile station, MSC, ATM network and service node for handling the call. There is no separation of call control and bearer control. The same resources are used for both.

Moreover, the references are not properly combined. Kalmanek, Jr., et al. relates to different types of networks such as data network, telephone network or cable network. Jouppila et al. relates to a wireless network. One skilled in the art would not consider the teachings of one analogous with the other to make the combination. Moreover, the combination would not result in the claimed invention.

Valentine et al. is directed to a call handoff in a wireless communication system. It does not disclose or suggest separation of call control and bearer control. Moreover, it is not apparent how Valentine et al. would be combined with Kalmanek, Jr. et al. Kalmanek, Jr., et al. relates to different types of networks such as data network, telephone network or cable network. Valentine et al. relates to a wireless network. One skilled in the art would not consider the teachings of one analogous to the other to make the combination. Moreover, the combination would not result in the claimed invention.

For the above reasons, claim 1 is not obvious over Kalmanek, Jr., et al. in view of Jouppila et al. and Valentine et al.

Claim 2 depends from claim 1 and is believed allowable for the same reasons therefore. Additionally, claim 2 specifies that the call is from a mobile terminal in a network to a mobile terminal in the network and the selecting step comprises selecting a single media gateway for handling the call. As noted, Kalmanek, Jr., et al. does not disclose or suggest any media gateway, let alone selecting a single media gateway for handling a call. Claim 2 is believed allowable for this reason as well.

For the above reasons, claims 1 and 2 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 3-12 as obvious over Kalmanek, Jr., et al. in view of Jouppila et al. and Valentine et al. and further in view of Rautiola et al. U.S. Patent No. 5,956,331.

Claims 3-10 depend from claim 1 and are believed allowable for the same reasons therefore. Particularly, the deficiencies with respect to Kalmanek, Jr., et al., Jouppila et al. and Valentine et al. are noted above. Rautiola et al do not disclose or suggest these deficiencies. Nor is Rautiola et al. properly combinable with Kalmanek, Jr., et al. More particularly, Rautiola et al. is related to an integrated data transfer network which integrates a radio local area network into a larger data transfer network using a gateway computer for providing connections between networks. The gateway computer does not correspond to a media gateway described in the above-referenced application for setting up bearer control for a call in a wireless communication network.

Independent claim 11 specifies a method of setting up a call in a wireless communication network with separation of call control and bearer control comprising: a) initiating call setup over one control node, the one control node determining a media gateway (MGW) for routing a user plane of the call; b) the one control node requesting resources from the MGW for handling the call; c) the one control node transferring an address for the MGW in a forward direction to a further control node; d) the further control node implementing steps b) and c) until either a call destination or an external network is reached, the call being carried through

the network, whereby call control is implemented in the control nodes and bearer control is implemented in the MGW.

Claim 12 depends from claim 11 and specifies the one control node selects the MGW for handling the bearer control of the call.

As discussed above, none of the cited references relate to separation of call control and bearer control. Moreover, no combination of the references results in such a method. Nor are the references combinable. Additionally, none of the references disclose or suggest transferring an address for an MGW in a forward direction to a further control node, whereby call control is implemented in control nodes and bearer control is implemented in the MGW. Claims 11 and 12 are not obvious over the cited references.

For the above reasons, claims 3-12 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 13-15 as obvious over Kalmanek, Jr., et al. in view of Jouppila et al. and Valentine et al. and further in view of Joensuu et al. U.S. Patent No. 5,878,347.

Claims 13-15 depend from claim 11 and are believed allowable for the same reasons therefore. Particularly, the deficiencies with respect to Kalmanek, Jr., et al., Jouppila et al. and Valentine et al. are noted above. Joensuu et al. do not disclose or suggest these deficiencies. Joensuu et al. is cited for disclosing a gateway MSC. However, there is no disclosure or suggestion of separation of call control and bearer control. Therefore, no combination of the references results in the claimed invention. Moreover, Joensuu et al. is not

properly combinable with Kalmanek, Jr., et al. for the same reasons discussed above relative to Valentine et al.

For the above reasons, claims 13-15 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 16-18 as obvious over Kalmanek, Jr., et al. in view of Jouppila et al., Valentine et al., Joensuu et al. and further in view of Valentine et al., U.S. Patent No. 6,219,546.

Claims 16 and 17 depend from claim 11 and are believed allowable for the same reasons therefore. Particularly, the deficiencies with respect to Kalmanek, Jr., et al., Jouppila et al., Valentine et al. '607 and Joensuu et al. are noted above. Valentine et al. '546 does not disclose or suggest these deficiencies. Nor is Valentine et al. '546 properly combinable with Kalmanek, Jr., et al.

Independent claim 18 specifies a wireless communication network comprising plural control nodes. The control nodes receive information about a call, the control nodes requesting resources from at least one media gateway (MGW) for handling a user plane of the call. The at least one MGW includes plural logical points for connecting plural MGW resources for handling the user plane of the call. The at least one MGW is adapted to identify one of the logical points to one of the control nodes in response to a request for resources from one of the control nodes. The plural control nodes use at least one MGW for handling the user plane of the call.

None of the cited references, alone or in any proper combination, disclose or suggest plural control nodes and at least one MGW, the control nodes requesting resources from the at least MGW and the MGW handling the user plane of the call, as discussed above. Particularly, Kalmanek, Jr., et al. does not disclose or suggest any MGW for handling a user plane of a call. Kalmanek, Jr., et al. is not even a wireless system. Kalmanek, Jr., et al. is not properly combinable with any of the other cited references for the reasons discussed above. Moreover, no combination of the references would result in the claimed invention. Therefore, claim 18 is not obvious.

For the above reasons, claims 16-18 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 19-24 as obvious over Kalmanek, Jr., et al. in view of Jouppila et al., Valentine et al. '607 and Valentine et al. '546, Joensuu et al. and further in view of Kung et al. U.S. Patent No. 6,373,817.

Claims 19-24 depend from claim 18. The deficiencies with respect to the references and independent claim 18 are noted above.

Kung et al. issued on an application filed December 30, 1999. The present application claims priority of an application filed August 16, 1999. Therefore, Kung et al. is not prior art relative to claimed invention. Moreover, Kung et al. is cited for using a gateway for multi-network accessing. However, such a gateway does not comprise a media gateway for handling a user plane of the call, as recited in the claims. Therefore, even if Kung et al. were properly cited, it would not provide the deficiencies noted above.

For the above reasons, claims 19-24 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claim 25 as obvious over Kalmanek, Jr., et al. in view of Jouppila et al., Valentine et al. '607 and Valentine et al. '546, Joensuu et al., and further in view of Graf U.S. Patent No. 6,490,284.

Claim 25 depends from claim 18 and specifies that the network uses an N-ISUP interface between the control nodes for call control signaling. Graf is cited for using N-ISUP. However, it does not disclose or suggest the deficiencies with respect to the other references. Therefore, claim 25 is believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claims 26 and 27 as obvious over Kalmanek, Jr. et al. in view of Jouppila et al., Valentine, '607, Joensuu et al., Valentine et al., '546 and further in view of Yang et al. U.S. Patent No. 6,198,936.

Claim 26 depends from claim 18 and is believed allowable for the same reasons therefore. Yang et al. is cited for transmitting and receiving user control plane information. This does not provide the deficiencies noted relative to the other references. Nor is Yang et al. properly combinable with Kalmanek et al. Therefore, claim 26 is not obvious.

Independent claim 27 specifies a wireless communication network comprising at least one MGW, each MGW being adapted for routing a user plane of a call and each including MGW resources for handling the call; and at least one control node, the at least one control node implementing application logic for call control, the application logic requesting MGW resources

from the at least one MGW for handling a call to allow pooling of MGW resources under control of the application logic.

None of the cited references, alone or in any proper combination, disclose or suggest at least one media gateway and at least one control node, the MGW routing a user plane of a call and the one control node implementing application logic for call control. Therefore, and for the same reasons discussed above, claim 27 is not obvious.

For the above reasons, claims 26 and 27 are believed allowable and withdrawal of the rejection is requested.

Applicant traverses the rejection of claim 28 as obvious over the same references cited relative to claim 27 and further in view of Edson U.S. Patent No. 6,526,581.

Claim 28 depends from claim 27 and further specifies an interface for signaling for MGW control between the at least one MGW and the at least one control node.

Edson does not disclose or suggest the deficiencies noted with respect to the remaining references. Moreover, Edson relates to an in home network. As with the other references, it is not properly combinable with Kalmanek, Jr. et al.

For the above reasons, claim 28 is believed allowable and withdrawal of the rejection is requested.

Finally, applicant notes the comments under the heading "Conclusion" in paragraph 10 of the action. This is essentially a restatement of the Examiner's earlier incorrect interpretation of Jouppila et al. There is no separation of call control and bearer control in Jouppila et al. or any of the other references.

Reconsideration of the application and allowance and passage to issue are
requested.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'F. William McLaughlin', is written over a horizontal line.

F. William McLaughlin
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